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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/098,832	06/17/1998	JARI HAMALAINEN	442-008040-U	4557

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EXAMINER

PHAN, MAN U

ART UNIT	PAPER NUMBER
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2665

DATE MAILED: 02/03/2004

17

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/098,832

Applicant(s)

Hamalainen et al.

Examiner

Man Phan

Art Unit

2665

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Nov 17, 2003
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

Response to Amendment

1. This communication is in response to applicant's 11/17/2003 Amendment in the application of Hamalainen et al. for a "Time division multiple access radio systems" filed 06/17/1998. This application claims foreign priority based on the application 972724 dated 06/24/1997 filed in Finland. This application is a Continued Prosecution Application (CPA) filed on March 14, 2003. The amendment to the claims has been entered and made of record. Claims 7-10 have been added, and claims 1-10 are pending in the application.

Remarks

2. Applicant's amendment with regard to the rejection under 35 U.S.C.103 are persuasive. Furthermore, the rejections of record under 35 U.S.C. § 103 of claims 1-6 are withdrawn in view of the newly discovered reference to Dent (US# 5,757,787). Accordingly, This action is made Non-Final. Rejections based on the newly cited reference follows.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set

forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crisler et al. (US#5,594,738) in view of Dent (US#5,757,787).

With respect to claims 5-7, both Crisler et al. (US#5,594,738) and Dent (US#5,757,787) disclose a novel method and system for allocating time slots in a TDMA communication system according to the essential features of the claims. Crisler discloses an effective channel allocation technique in a TDD-TDMA based network employing separate TDM downlink/uplink channels (*asymmetric TDMA time frames which contains asymmetric downlink and uplink traffic channel*). Crisler teaches in Fig. 1 illustrated a TDMA communication system 100 that includes a time slot allocator 101. The

communication unit 102 transmits information to the base stations via an uplink TDM channel 106 and receives information from the base stations via a downlink TDM channel 113 separately (*asymmetric TDMA time frames which contains asymmetric downlink and uplink traffic channel*). Uplink time slots (108) may be allocated within a communication system (100) when a communication unit (102) transmits a first packet (501) to a time slot allocator (101). Upon receiving the first packet (501), the time slot allocator (101) determines whether the first packet (501) contains a request for allocation of N uplink time slots. When the first packet (501) contains the request for allocation of N uplink time slots, the time slot allocator (101) allocates the N uplink time slots to the communication unit (102) when the N uplink time slots are available, wherein the N uplink time slots are allocated contiguous in time. The time slot allocator (101) then transmits an allocation indication to the communication unit in each of N downlink time slots (110) corresponding to the N allocated uplink time slots (108) to inform the communication unit (102) of the allocation (Col. 3; lines 25 plus).

In the same field of endeavor, Dent (US#5,757,787) discloses asymmetrical TDMA formats in which uplink TDMA formats can have a smaller number of timeslots combined with a greater availability of narrower bandwidth frequency channels than the corresponding downlink TDMA formats (*a greater number of time slots may be allocated in each downlink TDMA frame than in each uplink TDMA frame*), thus reducing the peak-to-mean power ratio needed in the mobile terminal . When practicing the invention disclosed in the above incorporated application however, a terminal is not capable of being compatible with the GSM cellular standard's uplink waveform (See Fig. 2; Col. 1,

lines 62 plus and Col. 24, lines 26 plus).

Regarding claims 1-2, they are method claims corresponding to the apparatus and system claims 5-7 above. Therefore, claims 1-2 are analyzed and rejected as previously discussed with respect to claims 5-7.

One skilled in the art would have recognized the need for efficiently providing a method and system for allocating of time slots in uplink/downlink TDMA frames using half duplex, and would have applied Dent's novel use of the TDMA frames for uplink and downlink in an asymmetric allocation of time slots into Crisler's teaching of the time slot allocator in a TDMA communication system. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Dent' Dual mode satellite/cellular terminal into Crisler's time slot allocation method with the motivation being to provide a system and method for channel allocation in a telecommunications with asymmetric uplink and downlink traffic channels in a TDD-TDMA based network.

5. Claims 3-4 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crisler et al. (US#5,594,738) in view of Dent (US#5,757,787) as applied to the claims above, and further in view of Galyas et al. (US#6,205,157).

With respect to the claims 8-9, these claims differ from claims above in that the claims require wherein the TDMA radio system utilizes the GPRS and HSCSD protocols. The standards High Speed Circuit Switched Data (HSCSD) and Global Packet radio Services (GPRS) have been introduced in the GSM standard to enable connections with

higher transmission rates. HSCSD and GPRS connections use a multislot configuration of channels for transmitting data, that is, one connection is allowed to occupy more than one channel, that is, more than one time slot in each frame. Currently, the Global System for Mobile Communication (GSM) based PCS systems operate at 1900 MHZ, and support only up to a rate of 9.6 Kbps for data transfer. Higher rate wideband applications are constantly being sought after to meet the ever growing demand of wireless communication services. Accordingly, High Speed Circuit Switched Data (HSCSD) and General Packet Radio Services (GPRS) are being standardized to accommodate this grave need. In the same field of endeavor, Galyas (US#6,205,157) teaches in Fig. 3 illustrated in more detail, the transport network 45 between the mobile station 15, base transceiver station 30 and interworking function 40 or PCU 46. With the further development of user applications within a public land mobile network (PLMN), a number of high capacity non-speech data services have been introduced. Such services include all circuit-switched data services as defined in TSGSM02.02 and TSGSM02.03, as well as other GSM phase 2+services, including facsimile transmission, high-speed circuit-switched data (HSCSD), high-speed modem connections, and general packet radio services (GPRS). As a result, a telecommunications module known as an interworking function (IWF) 40 has been developed to enable the transmission and protocol adaptation from one telecommunications network, such as a connected PSTN 50, to the serving PLMN. The IWF 40 may be co-located with a particular mobile switching center (MSC) serving a designated geographic area or may be implemented as a separate telecommunications node. The IWF 40 is connected to a transcoder/rate adapter unit (TRAU) 55. The TRAU

55 is further connected to a number of base transceiver stations (BTS) 30 providing radio coverage for mobile stations 15 located within the serving MSC coverage area (Col. 3, lines 31 plus).

Regarding claims 3-4 and 10, they are method claims corresponding to the apparatus and system claims 8-9 above. Therefore, claims 3-4, 10 are analyzed and rejected as previously discussed with respect to claims 8-9.

One skilled in the art would have recognized the need for efficiently providing a method and system for allocating of time slots in uplink/downlink TDMA frames using half duplex, and would have applied Galyas's delays generated within a GPRS, HSCSD, Dent's novel use of the TDMA frames for uplink and downlink in an asymmetric allocation of time slots into Crisler's teaching of the time slot allocator in a TDMA communication system. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Galyas' method for propagation delay control and Dent's novel use of the TDMA frames for uplink and downlink in an asymmetric allocation of time slots into Crisler's teaching of the time slot allocator in a TDMA communication system. Therefore, It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to apply Galyas' Method for propagation delay control and Dent' Dual mode satellite/cellular terminal into Crisler's time slot allocation method with the motivation being to provide a system and method for channel allocation in a telecommunications with asymmetric uplink and downlink traffic channels in a TDD-TDMA based network..

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Gilbert et al. (US#6,016,311) is cited to show the adaptive time duplexing method and apparatus for dynamic bandwidth allocation within a wireless communication system.

The Malmgren et al. (US#6,334,057) is cited to show the channel allocation in a telecommunications system with asymmetric uplink and downlink traffic.

The Dent (US#5,539,730) is cited to show the TDMA/FDMA/CDMA hybrid radio access methods.

The Dent (US#5,812,539) is cited to show the dual-mode satellite/cellular terminal.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (703)305-1029. The examiner can normally be reached on Mon - Fri from 6:30 to 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached on (703) 308-6602. The fax phone number for the organization where this application or proceeding is assigned is (703)305-3988.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-

3900.

8. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 305-9051, (for formal communications intended for entry)

Or: (703) 305-3988 (for informal or draft communications, please label

"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021

Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Mphan

01/21/2004

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MAN PHAN
PATENT EXAMINER